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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Reitmeier, et al.

Serial No.: 09/182,933

Confirmation No.: 2555

Filed: October 30, 1998

For: SECURE INFORMATION
DISTRIBUTION SYSTEM
UTILIZING INFORMATION
SEGMENT SCRAMBLING

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Group Art Unit: 2137

Examiner: Douglas J. Meislahn

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Dear Sir:

APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2137 dated May 3, 2004, finally rejecting claims 1-18, and 22-29. Please charge the fee of \$340.00 for filing this brief to Deposit Account No. 20-0782.

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Real Party in Interest

The real party in interest is the Sarnoff Corporation.

Related Appeals and Interferences

Appellants assert that no other appeals or interferences are known to the Appellants, the Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-18 and 22-29 are pending in the application. Claims 1-29 were originally presented in the application. Claims 19-21 were canceled without prejudice. Claims 1-18 and 22-29 stand rejected under 35 U.S.C. § 103 as discussed below. The rejection of claims 1-18 and 22-29 based on the cited references is appealed. The pending claims are shown in the attached Appendix.

Status of Amendments

A first response was filed on September 1, 2000 to overcome a first Office Action dated June 14, 2000. In the first Office Action, the Examiner rejected claims 9 and 14 under 35 U.S.C. § 112, first paragraph, and claims 6-9 under 35 U.S.C. § 112, second paragraph. Claims 1, 2, 10-13, 15, 18, 19, and 23-26 were rejected under 35 U.S.C. § 103 over Walker et al. (U.S. Patent No. 5,014,310) in view of Inoue (U.S. Patent No. 5,195,134). In reply to the first Office Action, the Appellants filed a first response with arguments directed to traverse the Examiner's rejections. Claims 19-21 were canceled. Claims 1, 6-9, 11, 13-15, and 22-24 were amended.

The Examiner responded to Appellants' September 1, 2000, first response in a second Office Action dated November 20, 2000. In the second Office Action, the Examiner maintained the rejection of the first Office Action.

A second response was filed on January 17, 2001 to overcome the second Office Action. The second response included arguments directed to traverse the Examiner's rejections in the second Office Action. Claims 1, 7-9, 13-15, 23, and 24 were amended.

The Examiner responded to Appellants' second response in an Advisory Action. In the Advisory Action, the Examiner maintained the grounds of rejection. The amendments filed with the second response were not entered by the Examiner.

A Continued Prosecution Application (CPA) was filed on April 16, 2001. The CPA included the amendments not entered in the second response.

The Examiner responded to Appellants' April 16, 2001 CPA in a third Office Action dated June 29, 2001. In the third Office Action, the Examiner asserted new grounds of rejection. The Examiner rejected claims 1-18 and 22-29 under 35 U.S.C. § 112, first paragraph. The Examiner also rejected claims 23 and 25-29 under 35 U.S.C. § 112, second paragraph.

A third response was filed on October 1, 2001 to overcome the third Office Action. The third response included arguments directed to traverse the Examiner's rejections in the third Office Action. Claim 23 was amended.

The Examiner responded to Appellants' third response in a fourth Office Action dated December 18, 2001. In the fourth Office Action, the Examiner rejected claims 1-

18 and 22-29 under 35 U.S.C. § 112, first paragraph. The Examiner rejected claims 1-2, 10-13, 15, 18 and 23-26 under 35 U.S.C. § 103 over Walker et al. (U.S. Patent No. 5,014,310) in view of Inoue (U.S. Patent No. 5,195,134). The Examiner took Official Notice in rejecting claims 3; 4, 5, 17, 27, and 28; 7, 8, and 29; 9; 14; and 18 and 22 over Walker et al. in view of Inoue.

A fourth response was filed on March 18, 2002 to overcome the fourth Office Action. The fourth response included arguments directed to traverse the Examiner's rejections in the fourth Office Action. No claims were amended.

The Examiner responded to Appellants' fourth response in a fifth Office Action dated June 4, 2002. In the fifth Office Action, the Examiner maintained the rejection of the fourth Office Action.

A fifth response was filed on August 26, 2002 to overcome the fifth Office Action. The fifth response included arguments directed to traverse the Examiner's rejections in the fifth Office Action. Claims 1, 15, 23, and 24 were amended. The amendments filed with the fifth response were not entered by the Examiner.

A Request for Continued Examination (RCE) was filed on September 4, 2002. The amendments of the fifth response were entered as a result of the Appellants filing the RCE.

The Examiner responded to Appellants' fifth response in a sixth Office Action dated November 21, 2002. In the sixth Office Action, the Examiner asserted new grounds of rejection. The Examiner rejected claims 1, 2, 10-13, 15, and 23-25 under 35 U.S.C. § 103(a) over Oshima et al. (WO98/27553 or U.S. Patent No. 6,266,299) in view of the Microsoft Press *Computer Dictionary* and Inoue. The Examiner took Official Notice in rejecting claims 3, 6, 16, and 26; 4, 5, 17, 27, and 28; 7, 8, and 29; 9; 14; and 18 and 22 over Oshima et al. in view of the Microsoft Press *Computer Dictionary* and Inoue.

A sixth response was filed on February 21, 2003 to overcome the sixth Office Action. The sixth response included arguments directed to traverse the Examiner's rejections in the sixth Office Action. No claims were amended.

The Examiner responded to Appellants' sixth response in a seventh Office Action, dated May 6, 2003. In the seventh Office Action, the Examiner maintained the rejection of the sixth Office Action.

A seventh response was filed on July 21, 2003 to overcome the seventh Office Action. The seventh response included arguments directed to traverse the Examiner's rejections in the seventh Office Action. No claims were amended.

The Examiner responded to Appellants' seventh response in an Advisory Action. In the Advisory Action, the Examiner maintained the grounds of rejection.

A Request for Continued Examination (RCE) was filed on September 8, 2003. An eighth response with amendments to claims 1, 15, 23, 24 was entered as a result of the Appellants filing the RCE.

The Examiner responded to Appellants' eighth response in an eighth Office Action dated November 21, 2003. In the eighth Office Action, the Examiner asserted new grounds of rejection. The Examiner rejected claims 1-14 and 24-29 under 35 U.S.C. § 112, second paragraph. The Examiner rejected claims 1, 2, 10-13, 15, and 23-25 under 35 U.S.C. § 103(a) over Tseng et al. (U.S. Patent No. 5,625,416) in view of Kupnicki et al. (U.S. Patent No. 4,742,544) and Inoue. The Examiner took Official Notice in rejecting claims 3, 6, 16, and 26; 4, 5, 17, 27, and 28; 7, 8, and 29; 9; 14; and 18 and 22 over Tseng et al. in view of Kupnicki et al. and Inoue. The Examiner rejected claims 15 and 23 under 35 U.S.C. § 103(a) over Oshima et al. (WO98/27553 or U.S. Patent No. 6,266,299) in view of the Microsoft Press *Computer Dictionary* and Inoue. The Examiner took Official Notice in rejecting claims 16; 17; and 18 and 22 over Oshima et al. in view of the Microsoft Press *Computer Dictionary* and Inoue.

A ninth response was filed on February 23, 2004 to overcome the eighth Office Action. The ninth response included arguments directed to traverse the Examiner's rejections in the eighth Office Action. Claims 1 and 24 were amended.

The Examiner responded to Appellants' ninth response in a Final Office Action dated May 3, 2004. In the Final Office Action, the Examiner withdrew the rejection under 35 U.S.C. § 112, second paragraph and maintained the 35 U.S.C. § 103(a) rejections of the eighth Office Action.

A tenth response was filed on July 2, 2004 to overcome the Final Office Action. The tenth response included arguments directed to traverse the Examiner's rejections in the Final Office Action. No claims were amended.

The Examiner responded to Appellants' tenth response in an Advisory Action. In the Advisory Action, the Examiner maintained the grounds of rejection of the Final Office Action.

A Notice of Appeal was filed on October 4, 2004.

Summary of Claimed Subject Matter

The present invention generally relates to information distribution systems and securing information distributed within an information distribution system.

The Moving Pictures Experts Group (MPEG) has defined several standards relating to digital data delivery systems, e.g. MPEG-1, MPEG-2. These standards describe data processing and manipulation techniques that are well suited to the compression and delivery of video, audio and other information using fixed or variable length digital communications systems. Specifically, in the case of video processing systems, MPEG and MPEG-like video processing systems are characterized by prediction-based compression encoding of video frames with or without intra- and/or inter-frame motion compensation encoding. (See Appellants' Specification, page 1, line 13 – page 2, line 2)

Currently, electronic distribution systems do not typically strike an appropriate balance between flexibility and security for the purposes of some information distribution applications. To enable electronic distribution of motion pictures (i.e., film) and other entertainment video applications, it is necessary to dynamically process "trailers" (i.e., short previews of coming attractions) on a location by location basis, in addition to full length motion pictures. It is necessary to incorporate a high level of security, ideally using a multi-layer security approach, such that the valuable intellectual property transmitted within the system is not compromised. (See Appellants' Specification, page 2, lines 3-12)

The present invention provides a method and apparatus for securing and, optionally, distributing an information stream by dividing the information stream into a collection of segments and compressing the segments, rearranging the order of the segments and encrypting the segments prior to, e.g., distributing the encrypted segments to one or more users within an information distribution system. Specifically, in one embodiment of the invention, an input information stream is divided into a collection of information segments, the individual segments are then compressed and arranged in a non-standard (i.e., scrambled) manner to produce a scrambled collection

of information segments and an associated index table suitable for use in rearranging the collection of information segments into a standard (i.e., unscrambled) order. The scrambled collection of information segments and the associated index table are encrypted (using the same or different encryption techniques) and distributed to one or more subscribers (using the same or different distribution channels). Optionally, the scrambled collection of information segments is distributed using a plurality of distribution channels (i.e., multipath distribution) and/or at a plurality of different times (i.e., temporally staggered distribution). (See Appellants' Specification, page 2, line 20 – page 3, line 4)

Specifically, one important aspect of the present invention is building of an index table. For distribution/storage, sequences (e.g., MPEG-2 sequence) may be arbitrarily re-ordered and an index table built that contains pointers to the storage locations of sequences ordered in their correct presentation sequence. (See Appellants' Specification, page 4, lines 17-20) Another important aspect of the present invention is use of the index to recover an information stream. In one embodiment, decrypted information stream segments are accessed according to information within a decrypted index table. Specifically, the decrypted information stream segments are accessed according to information within the decrypted index table. Specifically, the decrypted index table indicates a correct temporal order or sequence for the decrypted information stream segments. (See Appellants' Specification, page 13, lines 9-12)

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 15, 23 and 24 are presented below in claim format with elements read on FIG. 1 of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Appellants' independent claim 1 recites a method for securing an information stream comprising a sequence of image frames. An initial step is segmenting the information stream into a plurality of information stream segments having a first segment sequence, where each of the information stream segments comprise a plurality of image frames. The image frames are compressed after the segmenting step by employing prediction-based compression. The information stream segments are re-sequenced to produce a re-sequenced information stream having a second segment

sequence, where the first segment sequence is related to the second segment sequence by an index. The re-sequenced information stream and the index are then encrypted.

Claim 1 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

1. A method for securing an information stream comprising a sequence of image frames, said method comprising the steps of:
 - segmenting said information stream into a plurality of information stream segments having a first segment sequence, each of said information stream segments comprising a plurality of image frames; (page 11, lines 19-20)
 - compressing said image frames after said segmenting step by employing prediction-based compression; (page 11, lines 27-28)
 - re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said first segment sequence being related to said second segment sequence by an index; and (page 12, lines 7-12)
 - encrypting said re-sequenced information stream and said index. (page 12, lines 14-18)

Claim 15 recites the complementary recovery method of Appellants' invention. In other words, claim 15 is complementary to claim 1, where the encrypted streams and index can be recovered.

Claim 15 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

15. A method for recovering image frames from an information stream formed according to the securing method of claim 1, said method for recovering comprising the steps of:
 - recovering said index relating said second segment sequence to said first segment sequence; (page 13, lines 1-2)
 - decrypting said encrypted information stream segments to produce corresponding decrypted information stream segments; (page 13, lines 2-4)
 - re-sequencing, using said recovered index, said decrypted information stream segments; and (page 13, lines 11-17)
 - decompressing, after said re-sequencing step using a prediction-based decompression process associated with said compression process, said

compressed image frames included within said decrypted information stream segments. (page 13, lines 17-19)

Claim 23 recites the complementary recovery method of Appellants' invention. In other words, claim 23 is complementary to claim 1, where the encrypted streams and index can be recovered.

Claim 23 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

23. A method for recovering an information stream having a first segment sequence from an encrypted re-sequenced information stream having a second segment sequence, said method comprising the steps of:
recovering an index relating said second segment sequence to said first segment sequence; (page 13, lines 1-2)
decrypting said encrypted information segments to form respective decrypted information segments; (page 13, lines 2-4)
re-sequencing, using said recovered index, said decrypted information segments to form an information stream comprising a plurality of image segments arranged according to said first segment sequence; and (page 13, lines 11-17)
decompressing after said re-sequencing step a plurality of image frames forming each of said information stream segments by employing prediction-based decompression. (page 13, lines 17-19)

Claim 24 recites the apparatus of Appellants' invention. In other words, claim 24 is the apparatus corresponding to the method of claim 1.

Claim 24 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

24. An apparatus comprising:
a segmentation module (110A), for segmenting an information stream into a plurality of information stream segments, said information stream segments arranged according to a first segment sequence, each of said information stream segments comprising a plurality of image frames; (page 11, lines 19-20)

a compression module (115A), for compressing said image frames after said segmenting step by employing prediction-based compression; ; (page 11, lines 27-28)

a re-sequencing module (130), for re arranging according to a second segment sequence, said information stream segments including said compressed image frames, said first segment sequence being related to said second segment sequence by an index; and (page 12, lines 7-12)

an encryption module (135), for encrypting said re-sequenced information stream segments and said index. (page 12, lines 14-18)

Grounds of Rejection to be Reviewed on Appeal

Claims 1, 2, 10-13, 15, and 23-25 stand rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claims 3, 6, 16, and 26 stand rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claims 4, 5, 17, 27, and 28 stand rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claims 7, 8, and 29 stand rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claim 9 stands rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claim 14 stands rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claims 18 and 22 stand rejected as being unpatentable over Tseng et al. (5,625,416) in view of Kupnicki et al. (US 4,742,544) and Inoue (US 5,195,134).

Claim 23 stands rejected as being unpatentable over Oshima et al. (WO98/27553, or US 6,266,299) in view of the Microsoft Press *Computer Dictionary* and in view of Inoue (US 5,195,134).

ARGUMENT

I. THE EXAMINER ERRED IN REJECTING CLAIMS 1-18 AND 22-29 BECAUSE THE CITED REFERENCES FAIL TO TEACH, SHOW, OR SUGGEST SEGMENTING OF A DIGITAL STREAM, COMPRESSING THE INDIVIDUAL SEGMENTS, RE-SEQUENCING THE COMPRESSED SEGMENTS, INDEXING, AND ENCRYPTING THE RE-SEQUENCED COMPRESSED SEGMENTS AND THE INDEX.

A. 35 U.S.C. § 103 - Claims 1, 2, 10-13, 15, and 23-25.

Claim 1

The Examiner has rejected claims 1, 2, 10-13, 15, and 23-25 in the Final Office Action as being unpatentable over Tseng et al. (US patent 5,625,416) (Tseng) in view of Kupnicki et al. (US patent 4,742,544) (Kupnicki) and Inoue (US patent 5,195,134). The rejection is respectfully traversed.

The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said first segment sequence being related to said second segment sequence by an index; and encrypting said re-sequenced information stream and said index", as recited in claim 1.

Tseng discloses a method "whereby video program material is produced, digitized, compressed, transmitted, decompressed and displayed. To enhance image quality, or to maintain image quality over a relatively low bandwidth medium, the method further describes a technique whereby a video image may be segmented into one or more segments containing video and/or audio information, separately digitized, compressed and transmitted to a service center, then reassembled at the service center for broadcast over a radio subcarrier." (Tseng, col. 2, lines 53-62)

Kupnicki discloses a "controlled access television communications network in which scrambling and descrambling are accomplished by digital signal processing. At

the scrambler, the video and audio information are digitized, segmented for example on a line-by-line basis, and randomly reordered. Decryption data corresponding to the random reordering of the information segments are derived, and inserted into the scrambled video data. A composite signal comprising the video data, audio modulated subcarrier, synchronizing signals and the decryption data is transmitted to the receivers along with dedicated keys whereby descramblers at the receivers are selectively enabled in accordance with the remote selection of authorized users." (Kupnicki, Abstract)

Inoue discloses that "[s]crambled video and audio signals of programs are transmitted from a transmitting system via a communication satellite to a receiving system. The audio signal contains channel, start/end time, and standard time information of the programs. The receiving system has a calendar for generating time information which is corrected according to the standard time information. Desired programs can automatically be recorded by a video tape recorder connected to the receiving system, based on the channel and start/end time information which is displayed. Any received programs which the user of the receiving system does not want to record can be canceled simply by pushing cancel keys." (Inoue, Abstract)

Appellants' invention is directed to a method and apparatus for securing an information stream by dividing that stream into a collection of segments that are then compressed using prediction based compression, rearranged in order in accordance with an index, and then encrypted along with the index. In one embodiment of the invention, an input information stream is divided into a collection of information segments, the individual segments are compressed using prediction based compression, then arranged in a non standard (i.e., scrambled) manner to produce a scrambled collection of information segments and an associated index table that is suitable for rearranging the collection of information segments into a standard (i.e., unscrambled) order, and then the scrambled collection of information segments and the associated index table are both encrypted. Other embodiments relate to recovering the input information stream.

The present invention protects the information stream from pirates or unauthorized subscribers using multiple layers of protection. Segmentation followed by

compression of the segments using predictive based compression provides a first layer of protection. Segmenting and compressing the segments produces a different compressed information stream than if the information stream was compressed in the normal manner. Re-arranging the compressed individual segments provides another layer of security. Encrypting provides yet another layer. Finally, encrypting an index that is used to re-order the scrambled, compressed, and encoded individual segments provides still another layer of security.

In the Final Office Action dated May 3, 2004, the Examiner conceded that Tseng fails to teach or suggest "that the segments are re-sequenced or encrypted." (Final Office Action, page 5, paragraph 2) Appellants submit that Tseng also fails to teach an index. The Examiner then cites Kupnicki in order to cure the Examiner's perceived deficiencies of Tseng. The Examiner further cites Inoue in an effort to assert that encrypting scrambled data is known in the art.

The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said first segment sequence being related to said second segment sequence by an index; and encrypting said re-sequenced information stream and said index", as recited in claim 1. Appellants assert that claim 1 is patentable over the cited references for at least the reasons that follow.

First, Kupnicki discloses segmenting and then re-ordering of the segmented signals, along with inserting re-ordering information into the scrambled video data. That re-ordering information is recovered using KEY codes. Kupnicki not only fails to disclose compression, but also fails to disclose encrypting the re-ordered segmented signals and encrypting the re-ordering information. In Kupnicki et al., the re-ordering is the encryption, no other encryption is taught or suggested. Kupnicki fails to include an encrypted index because the pre-arranged KEY codes negate the need for an index.

Second, there is absolutely no motivation to combine Kupnicki and Inoue with Tseng. Both the Kupnicki and Inoue arrangements fail to disclose or suggest "compressed image frames". In fact, Kupnicki and Inoue are devoid of the concept of compressed image frames. Kupnicki discloses the concept of rearranging video line

information, for example, line segment swapping, where a video line or lines are segmented and the order of the segments is randomly intermixed. (Kupnicki, col. 2, lines 23-25) Kupnicki also discloses that scrambling a video signal in an NTSC environment. (See Kupnicki, col. 4, lines 22-28) Inoue discloses, that "[t]he video signal which is transmitted from the video, audio, and digital audio signal transmission device to the scramblers is of NTSC format, and scrambled by line shuffling, using frame memory" (column 4 lines 7-11). The Inoue arrangement like Kupnicki rearranges video lines. Thus, clearly Kupnicki and Inoue teach away from Tseng because Kupnicki and Inoue clearly operate in the NTSC environment and Tseng operates in the digital environment. Criticalities addressed in the NTSC and digital environments are completely different and solutions are completely different. Thus, Appellants assert that the Examiner has failed to present a prima facie case of obviousness in combining Tseng with Kupnicki and Inoue to arrive at the claimed invention.

Third, Tseng teaches segmenting and compressing signals while the techniques disclosed in Kupnicki and Inoue fail to disclose the use of compression, segmenting of a digital stream, compressing the individual segments, re-sequencing the compressed segments, indexing, or encrypting the re-sequenced compressed segments along with the index. Thus there is no motivation to combine Kupnicki and Inoue with Tseng and, even if combined, would not teach rearranging the segments of a digital stream because Kupnicki, which is relied on for its teaching of scrambling, does not teach digital stream segment scrambling. Prediction-based compression operates only in the digital environment. Also, it is important to note that none of the references disclose the use of an index in accordance with Appellants' claims.

Fourth, the Final Office Action merely identifies prior art references that may individually relate to specific elements of the present invention. Yet the subject invention is comprised of all of the elements taken as a whole. In fact, the pending claims appear to have been used as a roadmap by the Examiner to find individual references that disclose individual elements, and then as a construction diagram to order those individual references to support the rejection. Such use of hindsight is impermissible. The relied upon prior art, when taken individually or in any permissible

combination, do not provide any suggestion or motivation to combine their teachings to arrive at the subject invention.

In view of the foregoing, independent claim 1 is patentable over over Tseng in view of Kupnicki and Inoue, when taken alone or in any permissible combination. Appellants hereby request withdrawal of the rejections of claim 1.

Claim 2

The Examiner has rejected claim 2 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 2 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 2 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 2 specifically recites "distributing said encrypted re-sequenced information stream and said index to one or more information consumers". Namely, dependent claim 2 specifically recites an additional distributing step where the encrypted sequenced information stream and the index can be safely distributed to consumers. Due to protection accorded by Appellants' invention, the encrypted sequenced information can be freely distributed without fear that a pirate will be able to decrypt the encrypted sequenced information. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 2.

As such, Appellants respectfully submit that claim 2 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 10

The Examiner has rejected claim 10 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 10 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 10 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 10 specifically recites "wherein: said information stream comprises a plurality of image frames and associated audio frames; and each of said information stream segments includes a respective first plurality of image frames and a respective second plurality of audio frames, said first plurality of image frames and said second plurality of audio frames intended for presentation during substantially the same temporal period". Namely, dependent claim 10 specifically recites a second plurality of audio frames that is not present in claim 1. In other words, Appellants' invention can be extended to include audio frames as well. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 10.

As such, Appellants respectfully submit that claim 10 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 11

The Examiner has rejected claim 11 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 11 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 11 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 11 specifically recites "segmenting said information stream into a plurality of image information stream segments having said first segment sequence, each of said image information stream segments comprising a plurality of

image frames; segmenting said information stream into a plurality of audio information stream segments having a third segment sequence, each of said audio information stream segments comprising a plurality of audio frames". Namely, dependent claim 11 specifically recites additional limitations of the segmenting step that are not present in claim 1. Again, Appellants' invention can be further extended to include audio frames as well. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 11.

As such, Appellants respectfully submit that claim 11 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 12

The Examiner has rejected claim 12 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 12 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 12 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 12 specifically recites "re-sequencing said image information stream segments to produce a re-sequenced image information stream having said second segment sequence, said first segment sequence being related to said second segment sequence by said index; and re-sequencing said audio information stream segments to produce a re-sequenced audio information stream having said fourth segment sequence, said third segment sequence being related to said fourth segment sequence by said index". Namely, dependent claim 12 specifically recites an additional re-sequencing step that is not present in claim 1 or claim 11, from which claim 12 depends. Again, Appellants' invention can be further extended to include audio frames as well. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 12.

As such, Appellants respectfully submit that claim 12 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 13

The Examiner has rejected claim 13 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 13 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 13 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 13 specifically recites "wherein said image information stream and said audio information stream are encrypted using at least one of: a common encryption technique using a common encryption key; different encryption keys using said common encryption technique; different encryption techniques using said common encryption key; and said different encryption techniques using said different encryption keys". Namely, dependent claim 2 specifically recites an encryption technique that is not present in claim 1, claim 11, or claim 12, from which claim 13 depends. Again, Appellants' invention can be further extended to include audio frames as well. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 13.

As such, Appellants respectfully submit that claim 13 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 15

The Examiner has rejected claim 15 in the Final Office Action as being unpatentable over Tseng et al. (US patent 5,625,416) (Tseng) in view of Kupnicki et al.

(US patent 4,742,544) (Kupnicki) and Inoue (US patent 5,195,134). The rejection is respectfully traversed.

In the Final Office Action dated May 3, 2004, the Examiner only asserts that “[a] method to recover the data is anticipated as well”. In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. Denied, 475 U.S. 1017 (1986); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.* 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Examiner’s statement that “[a] method to recover the data is anticipated as well”, in Section 11 of the Final Office Action is conclusory. The Examiner made no attempt to provide any analysis as to specific teachings in the cited art that read on the Appellants’ claims. Therefore, the Appellants submit that a prima facie case of obviousness has not been established by the Examiner.

Even if the Board could find that the Examiner met the standard for establishing a prima facie case of obviousness, the rejection of claim 15 based on the cited art would still fail. The Board’s attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest “re-sequencing, using said recovered index, said decrypted information stream”, as recited in claim 15.

The Examiner has conceded that Tseng fails to teach or suggest "that the segments are re-sequenced or encrypted." (Final Office Action, page 5, paragraph 2) Appellants submit that Tseng also fails to teach an index. The Examiner then cites Kupnicki in order to cure the Examiner's perceived deficiencies of Tseng. The Examiner further cites Inoue in an effort to assert that encrypting scrambled data is known in the art.

The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "re-sequencing, using said recovered index, said decrypted information stream segments", as recited in claim 15. Appellants assert that claim 15 is patentable over the cited references for at least the reasons that follow.

First, Kupnicki discloses segmenting and then re-ordering of the segmented signals, along with inserting re-ordering information into the scrambled video data. That re-ordering information is recovered using KEY codes. Kupnicki not only fails to disclose compression, but also fails to disclose encrypting re-ordered data and encrypting re-ordering information. In Kupnicki et al., the re-ordering is the encryption, no other encryption is taught or suggested. Kupnicki fails to include an encrypted index because the pre-arranged KEY codes negate the need for the index.

Second, there is absolutely no motivation to combine Kupnicki and Inoue with Tseng. Both the Kupnicki and Inoue arrangements fail to disclose or suggest "image frames". In fact, Kupnicki and Inoue are devoid of the concept of image frames. Kupnicki discloses the concept of rearranging video line information, for example, line segment swapping, where a video line or lines are segmented and the order of the segments is randomly intermixed. (Kupnicki, col. 2, lines 23-25) Kupnicki also discloses that scrambling a video signal in an NTSC environment. (See Kupnicki, col. 4, lines 22-28) Inoue discloses, that "[t]he video signal which is transmitted from the video, audio, and digital audio signal transmission device to the scramblers is of NTSC format, and scrambled by line shuffling, using frame memory" (column 4 lines 7-11). The Inoue arrangement like Kupnicki rearranges video lines. Thus, clearly Kupnicki and Inoue teach away from Tseng because Kupnicki and Inoue clearly operate in the NTSC environment and Tseng operates in the digital environment. Criticalities addressed in

the NTSC and digital environments are completely different and solutions are completely different. Thus, the Examiner has failed to present a prima facie case of obviousness in combining Tseng with Kupnicki and Inoue to arrive at the claimed invention.

Third, Tseng teaches segmenting and compressing signals while the techniques disclosed in Kupnicki and Inoue fail to disclose the use of compression, recovering an index, decrypting compressed segments, re-sequencing the compressed segments using the recovered index, and decompressing the decrypted re-sequenced compressed segments. Thus there is no motivation to combine Kupnicki and Inoue with Tseng and, even if combined, would not teach re-sequencing the segments of a digital stream because Kupnicki, which is relied on for its teaching of descrambling, does not teach digital stream segment descrambling. Also, it is important to note that none of the references disclose the use of an index in accordance with Appellants' claims.

Fourth, the Final Office Action merely identifies prior art references that may individually relate to specific elements of the present invention. Yet the subject invention is comprised of all of the elements taken as a whole. In fact, the pending claims appear to have been used as a roadmap by the Examiner to find individual references that disclose individual elements, and then as a construction diagram to order those individual references to support the rejection. Such is impermissible. The relied upon prior art, when taken individually or in any permissible combination, do not provide any suggestion or motivation to combine their teachings to arrive at the subject invention.

In view of the foregoing, independent claim 15 is patentable over over Tseng in view of Kupnicki and Inoue, when taken alone or in any permissible combination. Appellants hereby request withdrawal of the rejections of claim 15.

Claim 23

The Examiner has rejected claims 23 in the Final Office Action as being unpatentable over Tseng et al. (US patent 5,625,416) (Tseng) in view of Kupnicki et al.

(US patent 4,742,544) (Kupnicki) and Inoue (US patent 5,195,134). The rejection is respectfully traversed.

In the Final Office Action dated May 3, 2004, the Examiner only asserts that "[a] method to recover the data is anticipated as well". In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. Denied, 475 U.S. 1017 (1986); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.* 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Examiner's statement that "[a] method to recover the data is anticipated as well", in Section 11 of the Final Office Action is conclusory. The Examiner made no attempt to provide any analysis as to specific teachings in the cited art that read on the Appellants' claims. Therefore, the Appellants submit that a prima facie case of obviousness has not been established by the Examiner.

Even if the Board could find that the Examiner met the standard for establishing a prima facie case of obviousness, the rejection of claim 23 based on the cited art would still fail. The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "re-sequencing, using said recovered index, said decrypted information segments to form an information stream comprising a plurality of image segments arranged according to said first segment sequence", as recited in claim 23.

The Examiner has conceded that Tseng fails to teach or suggest "that the segments are re-sequenced or encrypted." (Final Office Action, page 5, paragraph 2). Appellants submit that Tseng also fails to teach an index. The Examiner then cites Kupnicki in order to cure the Examiner's perceived deficiencies of Tseng. The Examiner further cites Inoue in an effort to assert that encrypting scrambled data is known in the art.

The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "re-sequencing, using said recovered index, said decrypted information stream segments", as recited in claim 23. Appellants assert that claim 23 is patentable over the cited references for at least the reasons that follow.

First, Kupnicki discloses segmenting and then re-ordering of the segmented signals, along with inserting re-ordering information into the scrambled video data. That re-ordering information is recovered using KEY codes. Kupnicki not only fails to disclose compression, but also fails to disclose encrypting re-ordered data and encrypting re-ordering information. In Kupnicki et al., the re-ordering is the encryption, no other encryption is taught or suggested. Kupnicki fails to include an encrypted index because the pre-arranged KEY codes negate the need for the index.

Second, there is absolutely no motivation to combine Kupnicki and Inoue with Tseng. Both the Kupnicki and Inoue arrangements fail to disclose or suggest "image frames". In fact, Kupnicki and Inoue are devoid of the concept of image frames. Kupnicki discloses the concept of rearranging video line information, for example, line segment swapping, where a video line or lines are segmented and the order of the segments is randomly intermixed. (Kupnicki, col. 2, lines 23-25) Kupnicki also discloses that scrambling a video signal in an NTSC environment. (See Kupnicki, col. 4, lines 22-28) Inoue discloses, that "[t]he video signal which is transmitted from the video, audio, and digital audio signal transmission device to the scramblers is of NTSC format, and scrambled by line shuffling, using frame memory" (column 4 lines 7-11). The Inoue arrangement like Kupnicki rearranges video lines. Thus, clearly Kupnicki and Inoue teach away from Tseng because Kupnicki and Inoue clearly operate in the NTSC environment and Tseng operates in the digital environment. Criticalities addressed in

the NTSC and digital environments are completely different and solutions are completely different. Thus, the Examiner has failed to present a prima facie case of obviousness in combining Tseng with Kupnicki and Inoue to arrive at the claimed invention.

Third, Tseng teaches segmenting and compressing signals while the techniques disclosed in Kupnicki and Inoue fail to disclose the use of compression, recovering an index, decrypting compressed segments, re-sequencing the compressed segments using the recovered index, and decompressing the decrypted re-sequenced compressed segments. Thus there is no motivation to combine Kupnicki and Inoue with Tseng and, even if combined, would not teach re-sequencing the segments of a digital stream because Kupnicki, which is relied on for its teaching of descrambling, does not teach digital stream segment descrambling. Also, it is important to note that none of the references disclose the use of an index in accordance with Appellants' claims.

Fourth, the Final Office Action merely identifies prior art references that may individually relate to specific elements of the present invention. Yet the subject invention is comprised of all of the elements taken as a whole. In fact, the pending claims appear to have been used as a roadmap by the Examiner to find individual references that disclose individual elements, and then as a construction diagram to order those individual references to support the rejection. Such is impermissible. The relied upon prior art, when taken individually or in any permissible combination, do not provide any suggestion or motivation to combine their teachings to arrive at the subject invention.

In view of the foregoing, independent claim 23 is patentable over over Tseng in view of Kupnicki and Inoue, when taken alone or in any permissible combination. Appellants hereby request withdrawal of the rejection of claim 23.

Claim 24

The Examiner has rejected claims 24 in the Final Office Action as being unpatentable over Tseng et al. (US patent 5,625,416) (Tseng) in view of Kupnicki et al.

(US patent 4,742,544) (Kupnicki) and Inoue (US patent 5,195,134). The rejection is respectfully traversed.

In the Final Office Action dated May 3, 2004, the Examiner only asserts that "[a]n apparatus to produce this encrypted, scrambled, compressed data stream is inherent". In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. Denied, 475 U.S. 1017 (1986); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.* 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Examiner's statement that "[a]n apparatus to produce this encrypted, scrambled, compressed data stream is inherent", in Section 11 of the Final Office Action is conclusory. The Examiner made no attempt to provide any analysis as to specific teachings in the cited art that read on the Appellants' claims. Therefore, the Appellants submit that a prima facie case of obviousness has not been established by the Examiner.

Even if the Board could find that the Examiner met the standard for establishing a prima facie case of obviousness, the rejection of claim 24 based on the cited art would still fail. The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "a re-sequencing module, for re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said information

stream segments including said compressed image frames, said first segment sequence being related to said second segment sequence by an index; and an encryption module, for encrypting said re-sequenced information stream and said index", as recited in claim 24.

The Examiner has conceded that Tseng fails to teach or suggest "that the segments are re-sequenced or encrypted." (Final Office Action, page 5, paragraph 2) Appellants submit that Tseng also fails to teach an index. The Examiner then cites Kupnicki in order to cure the Examiner's perceived deficiencies of Tseng. The Examiner further cites Inoue in an effort to assert that encrypting scrambled data is known in the art.

The Board's attention is directed to the fact that Tseng, Kupnicki and Inoue (either singly or in any permissible combination) fail to disclose or suggest "a re-sequencing module, for re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said information stream segments including said compressed image frames, said first segment sequence being related to said second segment sequence by an index; and an encryption module, for encrypting said re-sequenced information stream and said index", as recited in claim 24. Appellants assert that claim 24 is patentable over the cited references for at least the reasons that follow.

First, Kupnicki discloses segmenting and then re-ordering of the segmented signals, along with inserting re-ordering information into the scrambled video data. That re-ordering information is recovered using KEY codes. Kupnicki not only fails to disclose compression, but also fails to disclose encrypting re-ordered data and encrypting re-ordering information. In Kupnicki et al., the re-ordering is the encryption, no other encryption is taught or suggested. Kupnicki fails to include an encrypted index because the pre-arranged KEY codes negate the need for the index.

Second, there is absolutely no motivation to combine Kupnicki and Inoue with Tseng. Both the Kupnicki and Inoue arrangements fail to disclose or suggest "image frames". In fact, Kupnicki and Inoue are devoid of the concept of image frames. Kupnicki discloses the concept of rearranging video line information, for example, line segment swapping, where a video line or lines are segmented and the order of the

segments is randomly intermixed. (Kupnicki, col. 2, lines 23-25) Kupnicki also discloses that scrambling a video signal in an NTSC environment. (See Kupnicki, col. 4, lines 22-28) Inoue discloses, that "[t]he video signal which is transmitted from the video, audio, and digital audio signal transmission device to the scramblers is of NTSC format, and scrambled by line shuffling, using frame memory" (column 4 lines 7-11). The Inoue arrangement like Kupnicki rearranges video lines. Thus, clearly Kupnicki and Inoue teach away from Tseng because Kupnicki and Inoue clearly operate in the NTSC environment and Tseng operates in the digital environment. Criticalities addressed in the NTSC and digital environments are completely different and solutions are completely different. Thus, the Examiner has failed to present a prima facie case of obviousness in combining Tseng with Kupnicki and Inoue to arrive at the claimed invention.

Third, Tseng teaches segmenting and compressing signals while the techniques disclosed in Kupnicki and Inoue fail to disclose the use of compression, segmenting of a digital stream, compressing the individual segments, re-sequencing the compressed segments, indexing, or encrypting the re-sequenced compressed segments along with the index. Thus there is no motivation to combine Kupnicki and Inoue with Tseng and, even if combined, would not teach rearranging the segments of a digital stream because Kupnicki, which is relied on for its teaching of scrambling, does not teach digital stream segment scrambling. Also, it is important to note that none of the references disclose the use of an index in accordance with Appellants' claims.

Fourth, the Final Office Action merely identifies prior art references that may individually relate to specific elements of the present invention. Yet the subject invention is comprised of all of the elements taken as a whole. In fact, the pending claims appear to have been used as a roadmap by the Examiner to find individual references that disclose individual elements, and then as a construction diagram to order those individual references to support the rejection. Such is impermissible. The relied upon prior art, when taken individually or in any permissible combination, do not provide any suggestion or motivation to combine their teachings to arrive at the subject invention.

In view of the foregoing, independent claim 24 is patentable over over Tseng in view of Kupnicki and Inoue, when taken alone or in any permissible combination. Appellants hereby request withdrawal of the rejection of claim 24.

Claim 25

The Examiner has rejected claim 25 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 25 depends indirectly from claim 23 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 23 of Appellants' invention, Appellants respectfully submit that dependent claim 25 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 25 specifically recites "wherein: said index and said encrypted and re-sequenced information stream segments are coupled to one or more information consumers via a distribution channel". Namely, dependent claim 25 specifically recites an additional distributing channel where the encrypted re-sequenced information stream and the index can be safely distributed to consumers. Due to protection accorded by Appellants' invention, the encrypted sequenced information can be freely distributed without fear that a pirate will be able to decrypt the encrypted sequenced information. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 25.

As such, Appellants respectfully submit that claim 25 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

B. 35 U.S.C. § 103 - Claims 3, 6, 16, and 26.

Claim 3

The Examiner has rejected claim 3 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 3 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 3 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 3 specifically recites "distributing, via a first medium, said encrypted re-sequenced information stream; and distributing, via a second medium, said encrypted index". Namely, dependent claim 3 specifically recites a distribution over multiple mediums that is not present in claim 1, or claim 2, from which claim 3 depends. Again, Appellants' invention provides another layer of protection where encrypted data is forwarded in a medium that is different than the medium carrying the encrypted index. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 3.

As such, Appellants respectfully submit that claim 3 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 6

The Examiner has rejected claim 6 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 6 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 6 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 6 specifically recites "wherein: said first medium comprises a plurality of distribution channels, each of said plurality of distribution channels distributing a respective plurality of said encrypted and re-sequenced information stream segments". Namely, dependent claim 6 specifically recites a plurality of distribution channels that is not present in claim 1, claim 2, claim 3, or claim 5, from which claim 6 depends. Again, Appellants' invention provides another layer of

protection, where different re-sequenced information streams are sent over different channels, thereby making it very difficult for unauthorized access of the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 6.

As such, Appellants respectfully submit that claim 6 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 16

The Examiner has rejected claim 16 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 16 depends directly from claim 15 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 15 of Appellants' invention, Appellants respectfully submit that dependent claim 16 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 16 specifically recites that "said encrypted re-sequenced information stream is received via a first medium; and said encrypted index is received via a second medium". Namely, dependent claim 16 specifically recites receiving information via multiple mediums, which is not present in claim 15. Again, the use of multiple mediums is another layer of protection that is accorded by the present invention. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 16.

As such, Appellants respectfully submit that claim 16 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 26

The Examiner has rejected claim 26 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 26 depends indirectly from claim 23 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 23 of Appellants' invention, Appellants respectfully submit that dependent claim 26 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 26 specifically recites "wherein: said index is distributed to one or more information consumers via a first distribution channel; and said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers via a second distribution channel". Namely, dependent claim 26 specifically recites a plurality of distribution channels that is not present in claim 23. Again, Appellants' invention provides another layer of protection, where encrypted data is forwarded via a channel that is different than the channel carrying the encrypted index. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 26.

As such, Appellants respectfully submit that claim 26 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

C. 35 U.S.C. § 103 – Claims 4, 5, 17, 27, and 28.

Claim 4

The Examiner has rejected claim 4 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 4 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 4 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 4 specifically recites "wherein said encrypted and re-sequenced information stream segments are distributed to said one or more information

consumers in a temporally discontinuous manner". Namely, dependent claim 4 specifically recites distributing segments in a temporally discontinuous manner, which is not present in claim 1, or claim 2, from which claim 4 depends. Again, distributing the encrypted data in a temporally discontinuous manner will further frustrate a pirate from gaining access to the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 4.

As such, Appellants respectfully submit that claim 4 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 5

The Examiner has rejected claim 5 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 5 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 5 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 5 specifically recites "wherein said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner". Namely, dependent claim 5 specifically recites distributing segments in a temporally discontinuous manner, which is not present in claim 1, claim 2, or claim 3, from which claim 5 depends. Again, distributing the encrypted data in a temporally discontinuous manner will further frustrate a pirate from gaining access to the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 5.

As such, Appellants respectfully submit that claim 5 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 17

The Examiner has rejected claim 17 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 17 depends indirectly from claim 15 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 15 of Appellants' invention, Appellants respectfully submit that dependent claim 17 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 17 specifically recites "wherein said encrypted and re-sequenced information stream segments are received in a temporally discontinuous manner". Namely, dependent claim 17 specifically recites receiving segments in a temporally discontinuous manner, which is not present in claim 15, or claim 16, from which claim 17 depends. Again, distributing the encrypted data in a temporally discontinuous manner will further frustrate a pirate from gaining access to the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 17.

As such, Appellants respectfully submit that claim 17 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 27

The Examiner has rejected claim 27 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 27 depends indirectly from claim 23 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 23 of Appellants' invention, Appellants respectfully submit that dependent claim 27 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 27 specifically recites "wherein: said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner". Namely, dependent claim 27 specifically recites distributing segments in a temporally discontinuous manner, which is not present in claim 23, or claim 25, from which claim 27 depends. Again, distributing the encrypted data in a temporally discontinuous manner will further frustrate a pirate from gaining access to the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 27.

As such, Appellants respectfully submit that claim 27 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 28

The Examiner has rejected claim 28 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 28 depends indirectly from claim 23 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 23 of Appellants' invention, Appellants respectfully submit that dependent claim 28 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 28 specifically recites "wherein: said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner". Namely, dependent claim 28 specifically recites distributing segments in a temporally discontinuous manner, which is not present in claim 23, or claim 26, from which claim 28 depends. Again, distributing the encrypted data in a temporally discontinuous manner will further frustrate a pirate from gaining access to the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 28.

As such, Appellants respectfully submit that claim 28 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

D. 35 U.S.C. § 103 - Claims 7, 8, and 29.

Claim 7

The Examiner has rejected claim 7 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 7 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 7 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 7 specifically recites "wherein: each of said information stream segments comprises a first number of compressed image frames". Namely, dependent claim 7 specifically recites a first number of compressed image frames, which is not present in claim 1. Again, segmenting a sequence of images into segments, with each segment comprising a number of compressed image frames will add another layer of protection. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 7.

As such, Appellants respectfully submit that claim 7 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 8

The Examiner has rejected claim 8 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 8 depends indirectly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 8 is

also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 8 specifically recites "wherein: in the case of an information stream segment including one or more predictively encoded compressed image frames, said one or more predictively encoded compressed image frames being predictively encoded using reference image frames within said information stream segment including said one or more predictively encoded compressed image frames". Namely, dependent claim 8 specifically recites predictive encoding using reference image frames, which is not present in claim 1, or claim 7, from which claim 8 depends. Again, adding predictive encoding adds another layer of protection to the present invention. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 8.

As such, Appellants respectfully submit that claim 8 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 29

The Examiner has rejected claim 29 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 29 depends indirectly from claim 23 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 23 of Appellants' invention, Appellants respectfully submit that dependent claim 29 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 29 specifically recites "said second distribution channel comprises a plurality of distribution channels, each of said plurality of distribution channels distributing a respective plurality of said encrypted and re-sequenced information stream segments". Namely, dependent claim 29 specifically recites a plurality of distribution channels, which is not present in claim 23, claim 26, or claim 28, from which claim 29 depends. Again, Appellants' invention provides another layer of

protection, where different re-sequenced information streams are sent over different channels, thereby making it very difficult for unauthorized access of the encrypted data. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 29.

As such, Appellants respectfully submit that claim 29 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

E. 35 U.S.C. § 103 - Claim 9.

The Examiner has rejected claim 9 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 9 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 9 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 9 specifically recites "wherein: a first compressed image frame within each of said information stream segments comprises an intra coded frame". Namely, dependent claim 9 specifically recites an intra-coded frame, which is not present in claim 1. Again, adding an intra coded frame is important because of the use of predictive coding. If an I-frame is placed in each segment, then each segment can be decoded independently of other segments. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 9.

As such, Appellants respectfully submit that claim 9 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

F. 35 U.S.C. § 103 - Claim 14.

The Examiner has rejected claim 14 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 14 depends directly from claim 1 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 14 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 14 specifically recites "wherein said step of encrypting includes a step of encrypting said indicia of buffer behavior". Namely, dependent claim 14 specifically recites a step of encrypting an indicia of buffer behavior, which is not present in claim 1. Again, encrypting an indicia of buffer behavior adds another layer of protection to the present invention. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 14.

As such, Appellants respectfully submit that claim 14 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

G. 35 U.S.C. § 103 - Claims 18 and 22.

Claim 18

The Examiner has rejected claim 18 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 18 depends directly from claim 15 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 15 of Appellants' invention, Appellants respectfully submit that dependent claim 18 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 18 specifically recites that "accessing, from a random access storage containing at least some of said decrypted information stream segments, said decrypted information stream segments according to said first segment sequence". Namely, dependent claim 18 specifically recites an accessing at least some

of the decrypted information stream segments from a random access storage, which is not present in claim 15. Due to protection accorded by Appellants' invention, the decrypted information stream segments can be freely accessed without fear that a pirate will be able to access the decrypted information. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 18.

As such, Appellants respectfully submit that claim 18 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 22

The Examiner has rejected claim 22 in the Final Office Action as being obvious over Tseng in view of Kupnicki and Inoue. The Appellants respectfully disagree.

First, dependent claim 22 depends directly from claim 15 and recites additional features therefor. Since Tseng in view of Kupnicki and Inoue fails to render obvious claim 15 of Appellants' invention, Appellants respectfully submit that dependent claim 22 is also not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 22 specifically recites that "accessing, from a random access storage containing at least some of said encrypted information stream segments, said encrypted information stream segments according to said first segment sequence". Namely, dependent claim 22 specifically recites an accessing at least some of the decrypted information stream segments from a random access storage, which is not present in claim 15. Due to protection accorded by Appellants' invention, the decrypted information stream segments can be freely accessed without fear that a pirate will be able to access the decrypted information. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 22.

As such, Appellants respectfully submit that claim 22 is not obvious in view of the teachings of Tseng in view of Kupnicki and Inoue and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 23

The Examiner has rejected claim 23 as being unpatentable over Oshima et al. (WO98/27553, or US 6,266,299) in view of the Microsoft Press *Computer Dictionary* and in view of Inoue (US 5,195,134). Appellants respectfully traverse this rejection.

Independent claim 23 recites:

23. A method for recovering an information stream having a first segment sequence from an encrypted re-sequenced information stream having a second segment sequence, said method comprising the steps of:

recovering an index relating said second segment sequence to said first segment sequence;

decrypting said encrypted information segments to form respective decrypted information segments;

re-sequencing, using said recovered index, said decrypted information segments to form an information stream comprising a plurality of image segments arranged according to said first segment sequence; and

decompressing after said re-sequencing step a plurality of image frames forming each of said information stream segments by employing prediction-based decompression. (emphasis added)

The Final Office Action references Figure 34 of Oshima as showing an MPEG encoder 43, a scrambler 45, and an encoding key 44. The Final Office Action then provides that MPEG anticipates prediction-based compression, and that the key 44 corresponds to the index recited in the rejected claim 23. Finally, the Final Office Action relies on the definition of scrambler for supporting a re-ordering of a signal sequence.

However, any reliance on the key 44 being equivalent to an index is misplaced. In pending claim 23, the index is first recovered and then used to re-sequence decrypted data. In contrast, the key 44 is a system operator encryption key that is used to control the scrambling. Oshima does not discuss sending that key, encrypting that key, or decrypting that key. This is assumed to be because a user has a corresponding key. Furthermore, a user need not use the same key as used in encrypting (just a key that can support decryption). Furthermore, as recited in claim 23, the index is used after decryption not for decryption. This is because the information protection scheme recited in claim 23 is fundamentally different than the protection scheme in Oshima.

Inoue fails to close the substantial gap between the invention defined by claim 23 and Oshima. While Inoue discusses encryption and decryption, and while the Examiner correctly states that encryption helps protect data, the invention recited by claims 23 includes an encrypted index that is not found in Oshima or Inoue, the use of that index to re-sequence decrypted data (not to decrypt), and decompression of the re-sequenced data.

In view of the foregoing, independent claim 23 is patentable over Oshima, the Microsoft Press *Computer Dictionary* and Inoue, when taken alone or in any permissible combination. Appellants hereby request withdrawal of the rejection of claim 23.

I. Examiner's Use of Official Notice

Finally, the Examiner took numerous Official Notices throughout the entire Final Office Action. Appellants traverse and refute each and every instance of Official Notice taken by the Examiner in the Final Office Action. Appellants' previous attempts to compel the Examiner to provide a reference in support of the Examiner's use of Official Notice were rebuffed by the Examiner. (See Office Action dated May 6, 2003, Section 6) Appellants traverse and refute each and every instance of Official Notice taken by the Examiner in the Final Office Action.

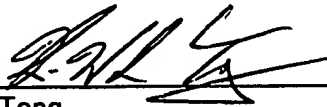
Conclusion

Thus, the Appellants submit that none of the claims presently in the application are obvious under the provisions of 35 U.S.C. § 103. Consequently, the Appellants believe all these claims are presently in condition for allowance.

For the reasons advanced above, Appellants respectfully urge that the rejections of claims 1-18 and 22-29 as being obvious under 35 U.S.C. §103 are improper. Reversal of the rejections of the Final Office Action is respectfully requested.

Respectfully submitted,

12/6/04
Date


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CLAIMS APPENDIX

1. (Previously presented) A method for securing an information stream comprising a sequence of image frames, said method comprising the steps of:

segmenting said information stream into a plurality of information stream segments having a first segment sequence, each of said information stream segments comprising a plurality of image frames;

compressing said image frames after said segmenting step by employing prediction-based compression;

re-sequencing said information stream segments to produce a re-sequenced information stream having a second segment sequence, said first segment sequence being related to said second segment sequence by an index; and

encrypting said re-sequenced information stream and said index.

2. (Original) The method of claim 1, further comprising the steps of:

distributing said encrypted re-sequenced information stream and said index to one or more information consumers.

3. (Original) The method of claim 2, wherein, said step of distributing comprises the steps of:

distributing, via a first medium, said encrypted re-sequenced information stream;
and

distributing, via a second medium, said encrypted index.

4. (Original) The method of claim 2, wherein said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner.

5. (Original) The method of claim 3, wherein said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner.

6. (Previously presented) The method of claim 5, wherein:
said first medium comprises a plurality of distribution channels, each of said plurality of distribution channels distributing a respective plurality of said encrypted and re-sequenced information stream segments.
7. (Previously presented) The method of claim 1, wherein:
each of said information stream segments comprises a first number of compressed image frames.
8. (Previously presented) The method of claim 7, wherein:
in the case of an information stream segment including one or more predictively encoded compressed image frames, said one or more predictively encoded compressed image frames being predictively encoded using reference image frames within said information stream segment including said one or more predictively encoded compressed image frames.
9. (Previously presented) The method of claim 1, wherein:
a first compressed image frame within each of said information stream segments comprises an intra coded frame.
10. (Original) The method of claim 1, wherein:
said information stream comprises a plurality of image frames and associated audio frames; and
each of said information stream segments includes a respective first plurality of image frames and a respective second plurality of audio frames, said first plurality of image frames and said second plurality of audio frames intended for presentation during substantially the same temporal period.

11. (Previously presented) The method of claim 1, wherein said information stream comprises a plurality of image frames and associated audio frames, and wherein said step of segmenting comprises the steps of:

segmenting said information stream into a plurality of image information stream segments having said first segment sequence, each of said image information stream segments comprising a plurality of image frames;

segmenting said information stream into a plurality of audio information stream segments having a third segment sequence, each of said audio information stream segments comprising a plurality of audio frames.

12. (Original) The method of claim 11, wherein said step of re-sequencing comprises the steps of:

re-sequencing said image information stream segments to produce a re-sequenced image information stream having said second segment sequence, said first segment sequence being related to said second segment sequence by said index; and

re-sequencing said audio information stream segments to produce a re-sequenced audio information stream having said fourth segment sequence, said third segment sequence being related to said fourth segment sequence by said index.

13. (Previously presented) The method of claim 12, wherein said image information stream and said audio information stream are encrypted using at least one of:

a common encryption technique using a common encryption key;

different encryption keys using said common encryption technique;

different encryption techniques using said common encryption key; and

said different encryption techniques using said different encryption keys.

14. (Previously presented) The method of claim 1, wherein

said step of encrypting includes a step of encrypting said indicia of buffer behavior.

15. (Previously presented) A method for recovering image frames from an information stream formed according to the securing method of claim 1, said method for recovering comprising the steps of:

recovering said index relating said second segment sequence to said first segment sequence;

decrypting said encrypted information stream segments to produce corresponding decrypted information stream segments;

re-sequencing, using said recovered index, said decrypted information stream segments; and

decompressing, after said re-sequencing step using a prediction-based decompression process associated with said compression process, said compressed image frames included within said decrypted information stream segments.

16. (Original) The method of claim 15, wherein:

said encrypted re-sequenced information stream is received via a first medium;
and

said encrypted index is received via a second medium.

17. (Original) The method of claim 16, wherein said encrypted and re-sequenced information stream segments are received in a temporally discontinuous manner.

18. (Original) The method of claim 15, wherein said step of re-sequencing comprises the steps of:

accessing, from a random access storage containing at least some of said decrypted information stream segments, said decrypted information stream segments according to said first segment sequence.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Previously presented) The method of claim 15, wherein said step of re-sequencing comprises the steps of:

accessing, from a random access storage containing at least some of said encrypted information stream segments, said encrypted information stream segments according to said first segment sequence.

23. (Previously presented) A method for recovering an information stream having a first segment sequence from an encrypted re-sequenced information stream having a second segment sequence, said method comprising the steps of:

recovering an index relating said second segment sequence to said first segment sequence;

decrypting said encrypted information segments to form respective decrypted information segments;

re-sequencing, using said recovered index, said decrypted information segments to form an information stream comprising a plurality of image segments arranged according to said first segment sequence; and

decompressing after said re-sequencing step a plurality of image frames forming each of said information stream segments by employing prediction-based decompression.

24. (Previously presented) An apparatus comprising:

a segmentation module, for segmenting an information stream into a plurality of information stream segments, said information stream segments arranged according to a first segment sequence, each of said information stream segments comprising a plurality of image frames;

a compression module, for compressing said image frames after said segmenting step by employing prediction-based compression;

a re-sequencing module, for re arranging according to a second segment sequence, said information stream segments including said compressed image frames,

said first segment sequence being related to said second segment sequence by an index; and

an encryption module, for encrypting said re-sequenced information stream segments and said index.

25. (Original) The apparatus of claim 23, wherein:

said index and said encrypted and re-sequenced information stream segments are coupled to one or more information consumers via a distribution channel.

26. (Original) The apparatus of claim 23, wherein:

said index is distributed to one or more information consumers via a first distribution channel; and

said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers via a second distribution channel.

27. (Original) The apparatus of claim 25, wherein:

said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner.

28. (Original) The apparatus of claim 26, wherein:

said encrypted and re-sequenced information stream segments are distributed to said one or more information consumers in a temporally discontinuous manner.

29. (Original) The apparatus of claim 28, wherein:

said second distribution channel comprises a plurality of distribution channels, each of said plurality of distribution channels distributing a respective plurality of said encrypted and re-sequenced information stream segments.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None